# Section 6
# County of Kaua'i
# Household Hazardous Waste & Electronic Waste
# Issue Paper

## 6.1 Purpose

The purpose of this paper is two-fold: (1) characterize the County's current household hazardous waste (HHW) collection program, provide strategies for improving the program, and evaluate the strengths and weaknesses of each strategy; and (2) address used electronics collection and recycling and provide strategies for the County to consider. The goals of the strategies are to:

1. Increase diversion of HHW and used electronics from the County's Sanitary Landfill (Landfill);
2. Minimize the cost to recycle or manage HHW and used electronics;
3. Further protect the environmental health of the County;
4. Provide an opportunity for small businesses and farms to properly manage hazardous wastes and electronics; and,
5. Increase participation in the HHW and electronics recycling program.

The strategies recommended for consideration to achieve the HHW and electronics recycling program goals include:

- Retain status quo of current HHW annual collection program;
- Expand the number of HHW collection events, and type of generators who have access to the collection events;
- Build a permanent HHW collection facility;
- Provide mobile HHW collection events;
- Provide an annual electronic waste collection event; and
- Consider accepting used electronics year-round at a County-owned facility.

# 6.2 Background

## 6.2.1 Legislative

### 6.2.1.1 Hazardous, Household Hazardous & Universal Waste

Hazardous waste is regulated under the federal Resource Conservation and Recovery Act (RCRA), Subtitle C. Per this federal law, hazardous waste exhibits at least one of four characteristics – ignitability, corrosivity, reactivity, or toxicity.

Hazardous waste is defined in the Hawai'i Administrative Rules (HAR), Title 11, Department of Health Chapter 261-3 and in the Hawai'i Revised Statutes (HRS), Chapter 342J-2 (*Hazardous Waste*) as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (1) Cause or significantly contribute to an increase in mortality or an increase in a serious irreversible or incapacitating reversible illness; or (2) Pose a substantial existing or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed".

Household-generated hazardous waste (such as automotive products, cleaners, pesticides, herbicides, paints and solvents), is exempt under both the RCRA rules of the Code of Federal Regulations (40 CFR Part 261.4)[1] and the Hawai'i Administrative Rules (HAR), Title 11, Department of Health, Chapter 261[2]. HAR 11-261-4(b)(1) states that the following solid wastes are not hazardous wastes and are exempt from regulation: solid wastes derived from households (including single and multiple residences, hotels and motels[3], bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas).

The Hawai'i Revised Statutes (HRS), Chapter 342G-1, defines "household hazardous waste" as "those wastes resulting from products purchased by the general public for household use which, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may pose a substantial known or potential hazard to human health or the environment when improperly treated, disposed of, or otherwise managed".

Also exempt under the Federal and State (HAR 11-261-5) rules are conditionally exempt small quantity generators (CESQGs). CESQGs are small businesses that generate 100 kilograms or less (approximately 220 pounds or 25 gallons) of hazardous waste per month.

[1] Electronic Code of Federal Regulations: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=4990e762d7b81851bef18f82dc851826;rgn=div5;view=text;node=40%3A25.0.1.1.2;idno=40;cc=ecfr#40:25.0.1.1.2.1.1.4

[2] Hawai'i Administrative Rules: http://www.hawaii.gov/health/about/rules/11-261.pdf

[3] Although wastes generated by hotel guests are non-hazardous and are not regulated under hazardous waste rules, hazardous wastes generated by hotel activities and operations are regulated. See the State DOH/Solid & Hazardous Waste Branch's "Regulatory Education: Hotels Bulletin" at: http://www.hawaii.gov/health/environmental/waste/sw/pdf/200512wmin.pdf

Per the U.S. Environmental Protection Agency (EPA), the federal Universal Waste regulations (40CFR Part 273) streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (e.g., thermostats) and lamps (e.g., fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. The State rules (HAR 11-273-5) address the applicability of the universal waste rules to households and CESQGs and allows the same exemptions as 11-261-4(b)(1) and 11-261-5 respectively. However, the State Universal Waste rules mention only thermostats under mercury-containing equipment and do not mention fluorescent lamps.

### 6.2.1.2 Used Electronics

Used electronics or "e-waste" includes discarded computers, cell phones, televisions and other electronic products. Those with cathode ray tubes (CRTs) such as color computer monitors and televisions are considered hazardous when discarded because of the presence of lead in the CRT. (Lead is not considered an environmental problem while the monitor or television is intact, however the lead can leach out when compacted or broken and create an environmental hazard.) Also, liquid crystal displays (LCDs) from flat screen panels and laptop computers are considered hazardous by the State of Hawai'i[4].

In addition to lead, electronics can contain chromium, cadmium, mercury, beryllium, nickel, zinc, and flame retardants. When electronics are not disposed of or recycled properly, these toxic materials can present problems. Based on studies conducted by the U.S. EPA, the CRTs and LCDs will fail the Toxicity Characteristic Leaching Procedure (TCLP) test for heavy metals.

Because the quantities of e-waste have been rapidly increasing, many state and local governments are experimenting with collection, donation, and recycling of used electronic products, as well as ways to involve producers of electronics in helping to recover these products at end-of-life. Currently there is no legislation in Hawai'i regulating the disposal or recycling of *household* electronics. Household amounts can be landfilled. Large quantity (over 1,000 kg/month or approximately 2,200 pounds) generators of electronic waste cannot dispose of these materials in a municipal landfill and must follow hazardous waste rules HAR 11-261-3 if the amounts of lead, mercury, cadmium, chromium, etc. cause them to test hazardous under State and Federal laws.

In 2005, the Hawai'i State Legislature introduced a bill (HB475 and SB1004) for "an act relating to electronic waste". The bill was to establish a task force to prepare a statewide policy and plan for the management of electronic waste. Per the bill, "the task force shall:

1. Determine whether electronic waste disposal in landfills should be banned;

[4] Per a memo from the State DOH to the City and County of Honolulu and PVT Land Company, dated June 9, 2006.

2. Determine who should be responsible for appropriate disposal or recycling of electronic waste, e.g., manufacturers, retailers, consumers, waste handlers, or a combination;
3. Evaluate and recommend strategies for the safe disposal of electronic waste;
4. Evaluate and recommend disposal and recycling options other than landfill disposal, including but not limited to parts harvesting, reuse, resale, donation, and demanufacturing;
5. Evaluate and recommend strategies for state and county governments to reduce, dispose, and recycle electronic waste generated by their respective agencies. This includes but is not limited to determining whether and how to implement a policy regarding the preferential sale or donation of surplus and obsolete computer and electronic equipment to other agencies and Hawai‘i’s public schools;
6. Evaluate and recommend ways of reducing electronic waste;
7. Evaluate and recommend funding strategies to implement statewide electronic waste management; and
8. Recommend a plan and timetable for implementing statewide electronic management.”

The task force was to submit a report on its actions and recommendations, including proposed legislation no later than twenty days prior to the convening of the regular session of 2006. The bill was carried over to the 2006 regular session but was never passed.

Appendix C provides an overview of some of the strategies various other states are taking, as shown by their legislation, to address the management of electronic wastes. The legislative efforts vary in impact, from stating that they will study effective means of managing electronic waste streams, to banning state-agency electronics from the waste stream, to charging an advance recovery fee on the sale of electronics.

### 6.2.2 County of Kaua’i’s 1994 Integrated Solid Waste Management Plan

In 1994, the County developed an Integrated Solid Waste Management Plan (1994 Plan), not long after Hurricane Iniki had caused substantial damage to the island in 1992. A two-day HHW collection event was held in October of 1992 and was funded by the Federal Emergency Management Agency (FEMA). A second HHW collection event, jointly sponsored by the State and the County, was held in November of that same year. The HHW section of the 1994 Plan included recommendations to continue sponsoring HHW collection events, as part of the County’s overall solid waste program, and not just as disaster-related events. Table 6-1 lists the “action items” and recommendations from the 1994 Plan pertaining to the County’s HHW program and describes what, if any, actions were taken by the County.

Table 6-1
County of Kaua'i
1994 ISWMP HHW Action Items and County Efforts

| Action Item | County Action |
|---|---|
| Coordinate HHW efforts with the State in an effort to:<br>▪ Reduce costs;<br>▪ Minimize liability;<br>▪ Achieve economies of scale using State-coordinated transport and disposal; and<br>▪ Access State technical resources. | The State does not offer any type of assistance, nor does it coordinate efforts among counties. |
| Implement promotion and education including:<br>▪ Description of HHW materials accepted at collection events.<br>▪ Description of environmental and health hazards of improper use and disposal of HHW products.<br>▪ Promotion of minimizing HHW through substitution or changing consumption patterns. | The County does provide information regarding the annual HHW collection event on its website, including a description of materials accepted at the event.<br>The website also warns of the dangers of flushing HHW down the drain or pouring into storm sewers.<br>Promotion of the annual HHW event includes ads in the local newspaper, radio ad campaigns, and banners placed at the transfer stations prior to the events listing the dates and times.<br>The County recycling office fields calls throughout the year regarding HHW and proper disposal options. Upon request, callers receive notification of the upcoming annual collection events. |
| Establish permanent collection sites for quarterly collection of HHW. | The County has not established a permanent HHW collection site or sites. |
| Investigate the feasibility of including small commercial generators in the HHW collection program. | The County has not investigated the feasibility of including small commercial generators in the HHW collection program. |
| Investigate collection of latex paints. | The County has not investigated collecting latex paints at the annual event. County staff encourage residents to dry out latex paint and dispose of it with regular refuse. |

## 6.2.3 Generation Rates

R. W. Beck estimated the County's generation rates for HHW and e-waste below.

### 6.2.3.1 HHW Generation Rates

To determine the estimated quantity of HHW generated in the County, R. W. Beck added the 2005 quantity of residential HHW disposed, 271 tons, to the 2005 quantity

of HHW diverted (i.e., recycled, fuel-blended, or disposed at a hazardous waste facility) 24.50 tons, which yields a 2005 residential generation quantity of 295.50 tons. Based on the County's residential population of 63,883, the HHW generation rate is 0.025 pounds per capita per day or 9.25 pounds per capita per year. This is less than the EPA estimate of 10.7 pounds per capita per year.

#### 6.2.3.2 E-Waste Generation Rates

According to the Electronic Industries Alliance (EIA), the average American produces 2.5 pounds of used CPUs/peripherals, computer monitors/TVs, cell phones and chargers annually. Applying this statistic to the County's residential population of 63,882 yields a 2005 quantity of approximately 80 tons of used electronics.

Per R. W. Beck's waste assessment conducted at the Kekaha Landfill in February of 2006, no used CPUs/peripherals, computer monitors/TVs, cell phones and chargers were found in the residential waste stream. However, there was approximately 30 tons of e-waste found in the commercial waste stream. It appears Kaua'i residents are similar to other electronic consumers, and may be stockpiling used electronics in their home.

## 6.3 Household Hazardous Waste

### 6.3.1 Current HHW Collection Program

The County provides an annual, two-day collection event for residents to drop-off HHW materials, free of charge, at the four County transfer stations. Commercial and institutional waste is not accepted. The events are held at two transfer stations each day from 8:30 a.m. to 2:30 p.m. Each year the County contracts with a hazardous materials handling/disposal company to provide collection, packaging, transportation, recycling and disposal services.

During the collection events, the County Recycling Coordinator monitors the events by observing and documenting quantities of HHW collected and answering questions from the public, while the transfer station staff assist in directing the public to the HHW drop-off area where the contracted vendor is mobilized to accept and properly package the HHW materials.

In preparation for the annual event, the County places large display ads in the local newspaper, conducts radio ad campaigns, and hangs banners at the transfer stations prior to the events listing the dates and times. The County website provides a list of the items accepted at the HHW collection events and has HHW information accessible year-round. The County recycling office fields calls throughout the year regarding HHW and proper disposal options, and collects names and phone numbers of people storing HHW who want to be contacted directly in advance of the events.

## 6.3.2 Strategies for Improving the HHW Program

Following are discussions of strategies for increasing HHW diversion, and the strengths and weaknesses of each strategy, as well as whether they have the potential to:

- Increase diversion of HHW from the Landfill;
- Minimize the cost to recycle or manage HHW;
- Further protect the environmental health of the County;
- Provide an opportunity for small businesses and farms to properly manage hazardous wastes; and
- Increase participation in the HHW collection program.

### 6.3.2.1 Retain Status Quo

#### Performance/Financial Analysis of Current HHW Program

The County has provided annual HHW collection events in 2002, 2003, 2005 and 2006. The estimated quantities of material collected from the events are shown below in Table 6-2.

Table 6-2
County of Kaua'i
Estimated Quantities of HHW Collected per Year

| Year | Pounds | Tons |
|---|---|---|
| 2002 | 49,870 | 24.94 |
| 2003 | 73,846 | 36.92 |
| 2005 | 48,998 | 24.50 |
| 2006 | 61,636 | 30.82 |

Comparing the quantities collected per year, more material was collected in 2003 than in other years. There is no known reason for this increase. The amounts collected in 2002 and 2005 were similar, and there was a 24 percent increase in the amounts collected in 2006 compared to 2005.

The contracted vendor is required to collect participant information (name, address, description of materials, estimated quantities, and signature) from every resident who drops off HHW materials. Participation data is available for only the last two events and is shown below in Table 6-3.

Table 6-3
County of Kaua'i
HHW Collection Event Participation Data

| Transfer Station | 2005 | 2006 |
|---|---|---|
| Kapaa | 94 | 92 |
| Hanalei | 39 | 60 |
| Lihue | 74 | 78 |
| Hanapepe | 85 | 92 |
| Total Number of Participants: | 292 | 322 |

The Hanalei site saw the largest increase in number of participants in 2006 compared to 2005. When the participation data is compared to the total quantities collected, the average pounds per participant was 168 pounds in 2005 and 191 pounds in 2006.

[We will compare the lbs per participant to Honolulu's numbers when we receive them.]

To compare the quantities collected per site, Table 6-4 lists the quantities (in units and drums) of HHW collected from each of the transfer station sites in 2006. The largest amount of batteries was collected in Lihue and Hanapepe. The least amount of HHW was collected in Hanalei, while the quantities of other materials were fairly evenly distributed among the Kapaa, Lihue, and Hanapepe sites.

Table 6-4
County of Kaua'i
2006 HHW Quantities Collected per Site[1]

| | Transfer Station | | | |
|---|---|---|---|---|
| | Kapaa 2/25/06 | Hanalei 2/25/06 | Lihue 2/26/06 | Hanapepe 2/26/06 |
| Automotive batteries (each) | 105 | 47 | 187 | 205 |
| Industrial batteries (each) | 8 | 7 | 6 | 4 |
| Oil-based paints/solvents (55-gal drum) | 9 | 5 | 11 | 12 |
| Flammable, toxic material (55-gal drum) | 2 | 2 | 2 | 2 |
| Toxic solid - pesticides (55-gal drum) | 0 | 1 | 0 | 1 |
| Aerosols | | | | |
| 20-gal drum | 3 | 2 | 3 | 2 |
| 5-gal drum | 0 | 1 | 0 | 0 |
| Acidic materials | | | | |
| 55-gal drum | 1 | 0 | 1 | 1 |
| 20-gal drum | 0 | 1 | 0 | 0 |
| Alkaline materials | | | | |
| 55-gal drum | 2 | 1 | 1 | 1 |
| 20-gal drum | 0 | 2 | 0 | 0 |
| Non-regulated oily water (55-gal drum) | 1 | 0 | 1 | 0 |
| Alkaline batteries | | | | |
| 20-gallon drum | 1 | 0 | 1 | 0 |
| 5-gal drum | 0 | 2 | 0 | 1 |
| Ni-Cd batteries (5-gal drum) | 1 | 1 | 1 | 0 |
| Lithium batteries (5-gal drum) | 0 | 0 | 0 | 1 |
| Mercury (5-gal drum) | 1 | 0 | 0 | 0 |

[1] The quantities are not listed as weights, but rather by the number of units (for batteries) or the number of drums used to package the waste in preparation for transport.

Each year the County contracts with a hazardous materials handling/disposal company to collect, package, transport, recycle, and dispose of HHW collected at the annual two-day event. For the 2006 HHW collection, the County contracted with Pacific Commercial Services (based in Honolulu). The total cost for their services was $50,834. The quantities collected were estimated to be 28.78 tons, which calculates to approximately $0.88 per pound. [We will compare to Honolulu when we receive those numbers.]

Should the County choose not to change anything with the current HHW collection program, this strategy would most likely result in not meeting any of the following goals:

- Increase diversion of HHW from the Landfill;
- Minimize the cost to recycle or manage HHW;
- Further protect the environmental health of the County;
- Provide an opportunity for small businesses and farms to properly manage hazardous wastes; or
- Increase participation in the HHW collection program.

### Strengths and Weaknesses

The strengths and weaknesses of retaining the status quo are summarized in Table 6-5.

Table 6-5
Strengths and Weaknesses of Strategy
Status Quo

| Strengths | Weaknesses |
|---|---|
| ▪ The County is committed to keeping HHW out of the Landfill and out of the environment by offering annual HHW collection events for residents to properly dispose of potentially harmful materials. | ▪ Some residents may choose not to wait for the annual collection event and discard potentially harmful HHW with their regular refuse that ends up in the Landfill. |
| ▪ In the last 4 years, the County has collected and diverted from the Landfill approximately 117 tons of HHW, or an average of 29 tons per year. | ▪ Residents that are moving off island are usually forced to discard their HHW in the regular refuse. |
| ▪ Cost to the County would not be likely to increase from current annual cost. | ▪ From R. W. Beck's waste assessment conducted at the Landfill in February of 2006, approximately 271 tons of residential HHW landfilled each year. |
| ▪ County residents are familiar with the current system. | ▪ There is no County-sponsored program for disposal of hazardous waste generated from small businesses or farms. |
| | ▪ Each year the County drafts an Invitation to Bid for HHW collection and disposal services. A longer term contract (such as three years with a possible option to renew), would reduce staff time in preparing an IFB each year and may provide better pricing. |

### 6.3.2.2 Expand the Number of HHW Collection Events and the Type of Generator that Can Use the Event

In an attempt to collect more HHW materials and/or reach more households, one strategy for the County to consider would be to increase the number of HHW collection events held each year. In addition, the County could establish separate collection days where small businesses and farmers could bring hazardous material and be charged a fee. In the County's next IFB for collection and disposal of HHW, the County could require a base proposal for one annual event at four transfer stations, then ask for alternate bids for pricing on two events per year, as well as separate events for small businesses and farmers. The proposals' pricing may help the County determine if expanding the current program is financially feasible.

This strategy has the potential to:

- ☑ Increase diversion of HHW from the Landfill;
- ☑ Minimize the cost to recycle or manage HHW;
- ☑ Further protect the environmental health of the County;

- ☑ Provide an opportunity for small businesses and farms to properly manage HHW; and
- ☑ Increase participation in the HHW collection program.

The County could consider having two collection events per year at the four transfer stations in an attempt to provide more convenience to residents. In addition, the County could provide a separate collection day(s) for small businesses and farmers, which are regulated as conditionally exempt small quantity generators (CESQGs). [We are waiting for guidance from DOH to determine if CESQGs require special requirements.] These generators are not likely to hire contactors to dispose of unwanted chemicals due to the expense involved. This concern is reflected by the fact that the waste composition study estimates that 0.5 percent of the commercial waste stream consists of hazardous materials. This percentage translates to 233 tons of this material being landfilled in 2005. Most programs that accept CESQG waste charge some type of fee, and may require participants to register in advance.

The County may also consider adding fluorescent lamps to the annual collection events. Fluorescent light bulbs and high intensity discharge (HID) lamps contain mercury. The typical fluorescent lamp contains approximately 40 milligrams of mercury, which isn't a large amount, however the cumulative effect, if improperly handled, can create a serious threat to the environment. The transport and recycling/disposal of fluorescent lamps could be added to the current HHW contract or contracted separately with a fluorescent lamp recycler. Similar to the HHW materials disposal contract, the competitive bid process may result in a lower per unit recycling cost. County staff could collect the lamps and prepare them for shipment at each HHW collection event and the lamp recycler could arrange for transport after the event, or the County could request proposals from lamp recyclers to attend each collection event with their own staff, equipment and vehicle.

### Strengths and Weaknesses

The strengths and weaknesses of this option are summarized in Table 6-6.

Table 6-6
Strengths and Weaknesses of Strategy
Expanding the Number of Annual Collection Events and Type of Generators Using the Events

| Strengths | Weaknesses |
|---|---|
| ▪ Would increase diversion, as residents would have more opportunities for disposing of HHW materials. | ▪ Additional collection events would result in increased tonnage, so the collection, transport, and disposal/recycling costs would increase. |
| ▪ May decrease the amount of time residents need to store unwanted HHW, decreasing the likelihood of a spill or accident. | ▪ The increased number of events per year would require more time of County staff to promote and coordinate events. |
| ▪ Could provide an opportunity for small businesses and farms to properly manage hazardous wastes. | ▪ May still not address the needs of residents who have HHW to discard immediately. |
| ▪ May offer opportunities for residents who are moving off island or who have a short time frame for storage and disposal of their HHW. | |

#### Performance/Financial Analysis

As discussed previously in Section 6.4.1, the County spent almost $51,000 in 2006 for the collection and disposal of HHW collected at the two-day event. That does not include the cost of advertising or County staff time. Should the County choose to expand the number of collection events per year, the collection and management costs will increase. The amount of increase is not known and would need to be determined through the bidding process, however the County may realize economies of scale from having an increased number of events. Also, the County should advocate State involvement in coordinating the procurement of an HHW materials handling/disposal company to service all counties as a mechanism to reduce costs through economies of scale. State HHW contracting is a proven approach that has been used for years in other states. Typically the counties have the option of using the State contract, or going out for bids on their own.

With respect to CESQGs, the County may not be able to charge the full cost of service and still make the program affordable for small businesses and farms. However, if the CESQGs paid some sort of fee, the County would not have to fully subsidize the program.

### 6.3.2.3 Construct a New Permanent HHW Collection Facility

Another strategy for the County to consider would be to build a permanent HHW collection facility. This strategy could:

- ☑ Increase diversion of HHW from the Landfill;
- ☑ Minimize the cost to recycle and manage HHW;
- ☑ Further protect the environmental health of the County;
- ☑ Provide an opportunity for small businesses and farms to properly manage HHW; and
- ☑ Increase participation in the HHW collection program.

After years of HHW drop-off collection events, an increasing number of municipalities on the mainland are investing in permanent HHW collection and processing facilities. A permanent facility provides several benefits to a municipality including:

- **Convenience to the residents.** A permanent site provides residents with a year-round option to properly dispose of HHW materials, rather than having to store the materials until the next collection event.
- **Product exchange or reuse center.** Many facilities are designed to include a product exchange area in which usable products are made available for residents to take free of charge. Likely items in a reuse program include paint, household cleaners, and automotive products. By offering these materials for reuse, the County could potentially realize savings from avoided disposal costs. Most product exchange programs require the resident or "customer" to sign a liability waiver that states they are over the age of 18 and they will use the product for its intended purpose. Legal counsel should be consulted to provide indemnification language.
- **Potential to reduce disposal costs.** A permanent facility would provide the County with the ability to bulk materials such as flammable liquids and oil-based paint. Bulking liquid waste provides cost savings by transporting drums of waste rather than boxes or labpacks.
- **Potential to reduce transportation costs.** Because the total quantities collected from an annual event fluctuate depending on participation, weather and other unknown circumstances, it is possible that some events result in partially full drums or containers, or partially full loads (i.e., half a barge or half a shipping container). A permanent facility would allow the County to arrange for transportation when it has a full load, rather than transporting materials on a per-event basis.

### Permanent HHW Facility Design/Overview

To better understand what would be required to build a permanent HHW collection facility, the basic design features are listed below, based on R. W. Beck's experience with permanent HHW collection facilities. There are no federal regulations regarding the construction of a permanent HHW collection facility, however a solid waste management facility permit is required in most states.

- A parcel of land large enough to accommodate the building, a small parking area, an entrance and exit for vehicle traffic, and a turning area for trucks.

- A steel-sided, fully enclosed building with sufficient height to allow for the loading of a semi-trailer from a ramp or a loading dock. The facility should have a receiving area, a bulking area for paints and flammable liquids, and separate storage rooms for labpacked materials and fluorescent bulbs. Other design aspects include restrooms, a decontamination station, an office, a product exchange room, and a storage room for items such as personnel protection equipment and incidentals. The building should be designed with a catch basin under the foundation to which all liquid materials would flow in the event of a spill.
- A pre-engineered hazardous material storage locker for the storage of drums of bulked flammable liquids, and other hazardous materials. These non-combustible units are fire rated and have either a sprinkler system or a chemical suppression system.

The size of the facility would be determined by a number of factors including the quantities of materials expected, the needs of the County, and local zoning requirements. At minimum, R. W. Beck would recommend a two-acre site with building dimensions of 3,000 to 5,000 square feet. As an example, Figures 6-1 through 6-3 below show a 3,000 square foot permanent HHW collection facility built for the City of Fargo, North Dakota (population 90,600)[5] in 1998 in which R. W. Beck assisted with the design.

Figure 6-1: Front view of HHW Collection Facility, Fargo, ND.

[5] Source: U.S. Census Bureau, 2000.

Figure 6-2: Rear view of HHW Collection Facility, Fargo, ND.

Figure 6-3: Pre-Engineered Hazardous Material Storage Locker, Fargo, ND.

County staff operating the facility would need to be trained under the Occupational Safety and Health Administration's (OSHA) guidelines, including 40 hours of Hazardous Waste Operations and Emergency Response (HAZWOPER) training, and/or other requirements as determined by the State of Hawai'i. The HAZWOPER training includes topics such as protection against hazardous chemicals, elimination of hazardous chemicals, safety of workers and the environment, and OSHA regulations.

### Strengths and Weaknesses

The strengths and weaknesses of a permanent HHW collection facility are summarized in Table 6-7.

Table 6-7
Strengths and Weaknesses of Strategy
Permanent HHW Collection Facility

| Strengths | Weaknesses |
|---|---|
| ▪ Would increase diversion because residents would have a convenient, year-round option to manage HHW materials. | ▪ Initial capital costs could be high. |
| ▪ Potential to reduce transportation and management costs by shipping consolidated loads. | ▪ Would require additional staff to accommodate hours of operation, including weekends. |
| ▪ If the building were designed with a product reuse room, the County would realize savings from avoided management costs. | ▪ The County may experience concerns about where the facility is sited. Similar to siting a landfill, there may be protests to a permanent HHW collection facility. |
| ▪ The County would have the opportunity to implement a CESQG program in which small businesses and farms would have the opportunity to properly manage hazardous waste for a fee. The building would allow for this type of program to be operated by having a computer on-site, a scale to weigh materials, accessibility, etc. | |

### Performance/Financial Analysis

Most municipalities with permanent HHW collection facilities have realized operational cost savings on a per participant basis when costs are compared to annual collection events (not including capital costs).

For example, after six years of annual HHW collection events, the City of Fargo constructed a 3,000 square foot permanent facility for approximately $350,000 in 1998. Table 6-8 below provides HHW quantities collected from the City of Fargo's annual events and permanent facility, the City's cost per pound, as well as quantities diverted through the City's Product Exchange Program.

Table 6-8
City of Fargo, North Dakota
HHW Quantities Collected

| Annual Event | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|
| Tons of HHW Brought to Annual Event | 15.6 | 19.1 | 14.2 | 32.0 | 37.3 | 30.0 |
| Cost per Pound[1] | $1.89 | $1.68 | $1.47 | $0.90 | $0.73 | $0.82 |
| **Permanent Facility** | **1999[2]** | **2000** | **2001** | **2002** | **2003** | **2004** |
| Tons of HHW Brought to the Permanent Facility[2] | 32.2 | 43.6 | 46.8 | 49.9 | 73.1 | 73.4 |
| Tons brought to facility that were diverted through the Product Exchange | 3.8 | 7.6 | 12.8 | 14.9 | 26.4 | 21.6 |
| Total Tons Diverted | 36.0 | 51.2 | 59.6 | 64.8 | 99.5 | 95.0 |
| Cost per Pound[3] | n/a | $1.39 | $1.07 | $1.13 | $0.71 | $0.65 |

[1] Includes labor costs for City staff and contracted disposal costs for each annual event.
[2] Does not include the amount diverted through the product exchange.
[3] Permanent facility costs do not include construction costs. The City of Fargo paid for the permanent facility using a portion of landfill tipping fees that were directed to an Enterprise Fund. Permanent facility program costs were not available for 1999.

As experienced by the City of Fargo, most HHW programs realize economies of scale over time due to increased quantities of HHW collected and improved program efficiencies. The City saw an increase in the quantities collected as the program matured and the cost per pound generally declined over the years. Also, the tons diverted through the product exchange increased over time. Those product exchange tons plus the tons brought to the permanent facility equaled much higher quantities in one year than quantities collected in an annual event. For example, in 1999 the City collected a total of 36 tons (32.2

### Mobile Collection Events in Conjunction with a Permanent Collection Facility

Should the County build a permanent HHW collection facility, another strategy for the County to consider in the future, would be to provide mobile collection events. If the County's population increases, especially in areas furthest from the permanent facility, the County may consider supplementing the facility with mobile collection events. This strategy could:

- ☑ Increase diversion of HHW from the Landfill;
- ☑ Minimize the cost to dispose of HHW;
- ☑ Further protect the environmental health of the County;
- ☑ Provide an opportunity for small businesses and farms to properly manage HHW; and
- ☑ Increase participation in the HHW collection program

With a permanent HHW collection facility, the County could also consider providing mobile collection events in various parts of the County throughout the year in an effort to capture more material from residents who are unable or unwilling to bring HHW to the permanent facility. Similar to the special collection events, certain days could be designated for small businesses and farmers. Mobile collection events could take place at a school, church, or public facility with a large parking lot.

A collection vehicle, such as a box truck and/or a trailer would be needed to conduct the mobile events. The County could coordinate the events and perhaps provide two or three staff persons to help with the collection, and request volunteers to assist with the traffic and unloading of the vehicles. To provide a full service program, the same HHW materials that are accepted at the permanent site should be collected at the mobile events. All HHW materials collected at the mobile events would be transported to the permanent HHW facility for processing.

The U.S. Department of Transportation (DOT) sets standards applicable to transporters of hazardous waste (40 CFR 263), and general requirements for shipments, packaging, and labeling waste (49 CFR 172). Because HHW is exempt from the hazardous waste rules, some states do not require a mobile HHW unit to placard the vehicle or manifest its contents. However, U.S. Department of Transportation (DOT) training would be required of staff. Training includes hazardous materials transportation regulations, DOT hazard classification, communications, packaging standards, and security plans.

With the County's present experience with collection events, transitioning to mobile collection events would be a logical program upgrade.

### Strengths and Weaknesses

The strengths and weaknesses of mobile collection events are summarized in Table 6-9.

Table 6-9
Strengths and Weaknesses of Strategy
Mobile Collection Events

| Strengths | Weaknesses |
|---|---|
| ▪ May increase diversion, as residents in outlying areas would have more convenient options for disposing of HHW materials.<br>▪ May decrease the amount of time residents need to store unwanted HHW, decreasing the likelihood of a spill or accident. | ▪ Initial capital costs for a truck/trailer could be high, however costs could be amortized over time.<br>▪ May require additional staff or re-scheduling of current staff to accommodate hours of operation, including weekends.<br>▪ Would require increased administrative time to coordinate and promote collection events. |

### Performance/Financial Analysis

Mobile collection events tend to be most effective in rural areas. In rural Minnesota for example, several counties with permanent HHW collection facilities stated their mobile collection events bring in approximately half of the total HHW volumes collected annually. These are mature (over 15 years), established programs. This mobile collection strategy is one for the County to consider in the long term, if/when a permanent collection facility is realized. Because the participation at the County's annual HHW collection events has been low (approximately 2 percent based on 322 participants in 2006 compared to the total number of households of 17,863), it would not be financially feasible to offer this service in the near future, but may be beneficial once the program has matured. It is recommended the County analyze their participation data in future years to determine how much HHW has been brought to the annual events from the rural areas to determine if this option would be worthwhile and/or financially feasible.

## 6.3.2.4 Use an Existing County Facility as an HHW Drop-off Location

An alternate strategy for the County to consider would be to use an existing County-owned facility as an HHW drop-off location. This strategy could:

- ☑ Increase diversion of HHW from the Landfill;
- ☑ Minimize the cost to recycle and manage HHW;
- ☑ Further protect the environmental health of the County;
- ☑ Provide an opportunity for small businesses and farms to properly manage HHW; and
- ☑ Increase participation in the HHW collection program.

If large enough, a County facility could be used as a drop-off site for residential HHW, and perhaps eventually CESQG waste. The size of the facility would determine if it would strictly be used as a collection and storage site or if any preliminary processing of HHW could be done on-site (such as bulking oil-based paints into 55-gallon drums). At least one hazardous materials storage locker (see Figure 6-3) would be required to store the waste. The storage locker would require electricity and most likely require a concrete slab be poured for its placement. The storage locker should be enclosed with a chain-link fence for safety reasons, as should the entire facility if possible. This may deter, but probably not eliminate, illegal dumping of HHW at the site.

An appointment-based drop-off policy or very limited hours of operation would limit the time required of County staff to operate the program, keeping costs to a minimum. County staff operating the facility would need to have 40 hours of OSHA HAZWOPER training (as discussed earlier in Section 6.3.2.3), and/or other requirements as determined by the State of Hawai‘i.

A contracted vendor could be scheduled for quarterly, semi-annual, or on-call collections to package, transport, and dispose and/or recycle the HHW materials.

The County would need to look into local zoning ordinances to ensure this type of use would be allowable in a building/location chosen by the County. Depending on the facility, the County may also be required to apply for a solid waste management facility permit.

### Strengths and Weaknesses

The strengths and weaknesses of using an existing County facility as an HHW drop-off location are summarized in Table 6-10.

Table 6-10
Strengths and Weaknesses of Strategy
Use an Existing County Facility as an HHW Drop-off Location

| Strengths | Weaknesses |
|---|---|
| ▪ Would increase diversion because residents would have a year-round option to manage HHW materials. | ▪ Initial capital costs for a hazardous waste storage locker and possible site preparation could be high, however costs could be amortized over time. |
| ▪ May offer opportunities for residents who are moving off island or who have a short time frame for storage and disposal of their HHW. | ▪ Finding a facility that fits the County's needs and complies with State permitting rules may be difficult. |
| ▪ Potential to reduce transportation and management costs by shipping full loads. | |
| ▪ Depending on the size of the facility, the County may have the opportunity to implement a CESQG program in which small businesses and farms would have the opportunity to properly manage hazardous waste for a fee. The facility could allow for this type of program to be operated by having a computer on-site, a scale to weigh materials, accessibility, etc. | |

### Performance/Financial Analysis

The County would most likely realize operational cost savings on a per participant basis when costs are compared to annual collection events. As most HHW programs mature, the quantities of HHW collected increases while the cost per pound for managing the waste decreases due to economies of scale.

The site and layout of an existing building may determine the size and number of hazardous materials storage lockers the County can place at the site. An average size storage locker is 10'x 24'x 9' and costs an estimated $30,000 to $40,000.

### 6.3.3 Benchmarking

To evaluate the strategies to increase the convenience and recovery rates associated with the County's HHW program, as well as reduce costs, R. W. Beck conducted a limited benchmarking analysis of HHW programs in other communities. These communities have permanent facilities, collection events, and some have a combination of both, as described in Table 6-11.

Table 6-11
HHW Benchmarking Summary

| | Saint Louis County, MO | Jackson County, MO | Dakota County, MN | Summit/Akron SWMA, OH | Denver, CO | Solid Waste Authority of Central Ohio |
|---|---|---|---|---|---|---|
| Type of HHW Program(s) | Six HHW collection events per year. | Through MARC[1], the residents have access to 2 permanent facilities and various mobile events held April – October each year. | One permanent collection facility, plus 3-4 annual collection events. | One permanent collection facility, plus collection events as requested and coordinated by communities in the County. | One permanent facility and curbside collection. | Eighteen special collection events per year. |
| Tons collected in 2003 | 454 | 499 | 630 | 494 | 72 | 344 |
| Cost per ton[2] | $1,760 | $1,200 | $1,040 | $1,200 | $2,083 | $1,132 |
| Population | 1,103,123 | 654,484 | 373,311 | 542,899 | 758,630 | 1,088,944 |
| Pounds per capita collected | 0.82 | 1.52 | 3.38 | 1.82 | 0.28 | 0.63 |

[1] Mid-America Regional Council
[2] This is calculated by dividing the total program costs by the number of pounds collected or the number of participants. However, each community may calculate total program costs somewhat differently (i.e., which expenses are charged to the HHW program, such as administration, public education, etc.).
[3] Does not include capital costs.

The Saint Louis County and SWACO data indicates that increasing the number of collection events will not necessarily yield a higher per capita recovery rate. However, it does appear that supplementing collection events with permanent HHW facilities will increase the recovery rate as demonstrated by the Jackson County, Missouri program. Finally, residential curbside collection of HHW is most likely the most convenient mechanism for residents to recover HHW, but appears to be the most expensive and does not appear to yield high recovery rates.

## 6.4 Electronics Recycling

A recent study by the National Recycling Coalition estimates that over 20 million personal computers became obsolete in the United States in 1998. Between 1997 and 2007 nearly 500 million personal computers will become obsolete – almost two computers for each person in the United States[6]. Some studies predict that a large number of televisions will be disposed when high definition television becomes widely available. Many used televisions, monitors, printers, and other types of electronic equipment are finding their fate in attics, basements, and warehouses. Businesses and households keep these products because they believe that they may still be valuable, but the longer equipment remains in storage, the less useful it becomes.

While end-of-life electronics were not detected in the residential waste stream during the waste characterization study that was conducted at the Landfill as part of this plan update, this does not mean that used electronics are not being produced by Kauai generators.

To help address these issues, and as part of the development of this Integrated Solid Waste Management Plan, we have provided a description of the current e-waste management program in the County and provided recommendations for improvement.

### 6.4.1 Current E-waste Collection and Recycling Program

#### 6.4.1.1 County of Kaua‘i

At this time, there are no businesses that accept electronics for recycling in the County. On its website, the County suggests that electronics in useable condition be donated to a non-profit agency for reuse, and mentions that certain electronics manufacturers offer recycling options for a fee.

In the past, the Kaua‘i Resource Center (KRC) operated by Island Recycling (based in Honolulu) accepted computer monitors (not television monitors), central processing units (CPUs), and printers, for recycling. In fiscal year 2005, approximately 38 tons of electronics were collected at the KRC. Island Recycling transported the materials to an electronics recycler/refurbisher in California. The County terminated the operating contract with Island Recycling in January 2006, however the County is in

[6] Source: National Recycling Coalition, http://www.nrc-recycle.org/resources/electronics/managing.htm

the process of procuring a new contractor to operate the facility. In the County's IFB for a new operator of the KRC, the vendor has the option of accepting the following materials for a fee: computer equipment (monitors, personal computers, keyboards, printers) and electronic equipment (TVs and stereos).

Because of the costs and space requirements associated with managing electronic waste, the new vendor of the KRC may not offer to accept e-waste, in which case the County may want to consider providing separate e-waste collection events (see Section 6.4.2.1).

#### 6.4.1.2 Other Counties in Hawai'i

- City and County of Honolulu – City-coordinated residential electronics collection events were held semi-annually for four years but were discontinued after the November 2005 event. Local recyclers, Lenox Metals and Island Recycling no longer accept electronic waste. The City and County of Honolulu are currently seeking alternative e-waste management options. In the meantime, the Hawai'i Open Source Education Foundation (HOSEF) accepts some computers as donations. HOSEF is a non-profit organization that refurbishes computers and donates them to Hawaii's schools and other non-profits organizations.
- County of Maui – Semi-annual events called CompuSwap are coordinated by the County and managed by Maui Recycling Group, a non-profit organization. Commercial and residential e-waste has been accepted in the past at no charge. In 2006, the County will be asking for a $10 per system donation. Items accepted during the event include computer monitors (no televisions), CPUs, keyboards, printers, laptops, and scanners. The e-waste is placed directly into shipping containers. Reusable items are given away at the event using a lottery system. Throughout the year, e-waste can be dropped off at no charge at Community Work Day, a non-profit organization that has a permanent container on-site for used electronics. The e-waste is then transported to the semi-annual events for shipment. The used electronics are sent to an electronics and scrap metal recycler in California. The contractor does not charge the County a fee based on weight; the only cost to the County is the shipping. The estimated cost is $20,000 per event.
- County of Hawai'i – CompuCycle events take place every January in Kailua-Kona and every May in Hilo. The events are sponsored by the County of Hawai'i's Department of Environmental Management and coordinated by Recycle Hawai'i. Materials accepted from residents (no commercial e-waste) include monitors, CPUs, keyboards, printers, laptops, and scanners. Event organizers hope to accept televisions eventually. Reusable computers can have the drives wiped clean at the site and Recycle Hawai'i determines which items to set aside for reuse. Items that are not reusable go to a loading area to be palletized and shrink wrapped. Approximately 33 tons of material is collected per event. Recycle Hawai'i approximates 10-20 percent of e-waste collected is reusable. The estimated cost is $18,000 per event. The end destination of the electronics has been Electronics Partners Corporation (ePC) in Los Angeles, California. Recycle Hawai'i toured Computer Recyclers of America in San Diego, CA. The

company has expressed interest in serving Hawai‘i’s market for e-waste recovery. [Need to confirm/update this data with the County of Hawai‘i.]

Until there is a Statewide approach to managing electronic waste, including a funding mechanism, each county will most likely handle e-waste differently, according to their budget and their philosophy. Detailed planning would be required to jointly contract with one vendor for several counties because each county operates their collections differently, has different funding available for e-waste management, has different procurement processes, etc.

## 6.4.2 Strategies for Improving the E-waste Collection and Recycling Program

### 6.4.2.1 Provide an Annual E-Waste Collection Event

In an attempt to divert increased quantities of e-waste from the Landfill, one strategy for the County to consider is to provide an annual electronic waste collection event. This strategy has the potential to:

- ☑ Increase diversion of e-waste from the Landfill;
- ❑ Minimize the cost to recycle or manage e-waste;
- ☑ Further protect the environmental health of the County;
- ☑ Provide an opportunity for small businesses and institutions to properly manage electronics; and
- ☑ Increase participation in the electronics recycling program.

The County could consider having the collection events at the four transfer stations, or another option would be to have the events in public parking lots or at the KRC. Similar to the HHW collection events, the County could have a separate collection day where small businesses and institutions could deliver used electronics. Due to the potential for a large volume of used electronics from individual businesses or institutions, it is strongly recommended that businesses be required to register in advance and indicate the number of units that will be brought to the event.

#### Strengths and Weaknesses

The strengths and weaknesses of e-waste collection events are summarized in Table 6-12.

Table 6-12
Strengths and Weaknesses of Strategy
Annual E-Waste Collection Event

| Strengths | Weaknesses |
|---|---|
| ▪ Would increase diversion, as residents would have an option other than landfilling for their electronic waste.<br>▪ May decrease the amount of time residents store unwanted e-waste, increasing the chances it may be reusable (if not too outdated).<br>▪ The County could contract with a recycling company based not only on cost, but also on the final destination of the materials and the amount recycled versus landfilled.<br>▪ The County may be able to coordinate a collection event with another county or counties to share in the collection, transportation, recycling/disposal costs. | ▪ Collection, transportation, recycling and/or disposal expenses may be high, depending on bids/proposals.<br>▪ First event may be time-consuming for staff to plan, however each event afterwards should require less time. |

### Performance/Financial Analysis

Low volumes of e-waste and generally poor economics of electronics processing have been a barrier to companies establishing a computer/electronics business in the County and in the State.

Based on past e-waste collection events held by the counties of Maui and Hawai‘i, the County may anticipate expenses of at least $20,000 per collection event. The County would need to research recycling companies (most likely on the mainland) and/or prepare an IFB to determine a more accurate cost for an annual e-waste collection event.

## 6.4.2.2 Eventually Accept E-Waste Year-Round

In the coming years, the quantities of electronic waste destined for disposal in the County will likely increase. In the future, the County may consider accepting e-waste from residents (and perhaps from CESQGs) year-round, perhaps at a permanent HHW collection facility or other County-owned building. This strategy has the potential to:

- ☑ Increase diversion of e-waste from the Landfill;
- ☑ Minimize the cost to manage or recycle e-waste (possibly);
- ☑ Further protect the environmental health of the County;
- ☑ Provide an opportunity for small businesses and institutions to properly manage electronics; and
- ☑ Increase participation in the electronics recycling program.

The strengths and weaknesses of accepting e-waste year-round are summarized in Table 6-13.

Table 6-13
Strengths and Weaknesses of Strategy
Accepting E-Waste Year-Round

| Strengths | Weaknesses |
|---|---|
| ▪ Would increase diversion, because residents would have a convenient, year-round option to dispose of electronic waste. | ▪ Collection, transportation, recycling and/or disposal expenses may be high, depending on bids/proposals. |
| ▪ May decrease the amount of time residents store unwanted e-waste, increasing the chances it may be reusable (if not too outdated). | ▪ Space may be an issue for storing e-waste until there is enough for a full-load to be shipped. |
| ▪ The County could contract with a recycling company based not only on cost, but also on the final destination of the materials and the amount recycled versus landfilled. | ▪ The County would need to ensure it complies with State rules and regulations regarding the quantities of e-waste stored at any given facility. |
| ▪ A program could be developed to collect e-waste from small businesses for a fee. | |

### Performance/Financial Analysis

As with the permanent HHW collection facility option in Section 6.3.2.3, the County may realize cost savings for a permanent e-waste collection option on a per participant basis when costs are compared to annual e-waste collection events due to increased quantities of material collected and improved program efficiencies.

# 6.5 Summary

## 6.5.1 HHW

To increase diversion of HHW from the Landfill and increase participation in the HHW program, R. W. Beck recommends the following strategies be considered by the County:

- Consider the feasibility of building a permanent HHW collection facility. Rather than spend $50,000 per year, the County could invest in the capital of constructing a new facility and over time, realize cost savings due to increased quantities of HHW collected and improved program efficiencies.
- Consider using an existing County facility as an HHW drop-off location with limited hours. If an appropriate building can be found, the capital costs could be greatly reduced, compared to new construction. Similar to the recommendation of a new facility, the County would realize cost savings due to increased quantities of HHW collected and improved program efficiencies.

- Consider expanding the current annual HHW collection event to more than one event per year. Also establish separate days for small businesses and farmers to dispose of hazardous materials. One recommendation would be that in the County's next IFB for collection and disposal of HHW, require a base proposal for one annual event at four transfer stations, then ask for alternate bids for pricing on two events per year, as well as separate events for small businesses and farmers. The proposals' pricing may help the County determine if expanding the current program is financially feasible.
- For annual HHW collection events, consider contracting with a hazardous materials handling/disposal company for longer than one year. A multiple year contract may result in better rates, as well as save staff time in developing the invitation for bids (IFB) each year.
- Advocate State involvement in coordinating the procurement of an HHW materials handling/disposal company to service all counties as a mechanism to reduce costs through economies of scale.
- Place more instructional information on the County website regarding what to do with certain HHW materials that can be managed by the residents rather than brought to the annual event (i.e., explain how to dry out latex paint with cat litter or sawdust; take automotive batteries back to the retailer; take rechargeable batteries to a drop-off location[7], or instruct residents what items can be safely flushed down a drain[8]).
- Consider adding fluorescent lamps to the annual collection events.
- If a permanent facility were developed:
  - Consider including a product exchange or reuse center in the building. The County could dedicate a segment of the facility as a product exchange area in which facility staff would place usable products on shelves for residents to take free of charge. Likely items in a reuse program include paint, household cleaners, and automotive products. By offering these materials for reuse, the County could potentially realize savings from avoided disposal costs. Most product exchange programs require the resident or "customer" to sign a liability waiver that states they are over the age of 18 and they will use the product for its intended purpose. Legal counsel should be consulted to provide indemnification language.
  - Consider implementing a CESQG hazardous waste collection program and charge businesses (including farm businesses) a fee for disposing of hazardous materials. Examples of successful city and county CESQG programs are listed in the References section (Sec. 6.6 below), with a link to each municipality's website.

[7] See the Rechargeable Battery Recycling Corporation website at: http://www.rbrc.org/call2recycle/dropoff/index.php

[8] See example of the City and County of Honolulu's HHW website: http://www.opala.org/waste_disposal_at_home/household_hazardous_waste.html

### 6.5.2 E-waste

To increase diversion of electronic waste from the Landfill, R. W. Beck recommends the following strategies be considered by the County:

- Place more instructional information on the County website regarding what residents can do with used electronics, including old computers and cell phones. List the local non-profit agencies that are interested in receiving used computers as well as the computer manufacturers (Dell, Gateway, Hewlett-Packard, IBM, etc.) that provide recycling/trade-in services, similar to the City and County of Honolulu's website:

  http://www.opala.org/computer/Computer_Reuse_and_Recycling.htm

  In a press release dated June 28, 2006, Dell announced plans to provide free recycling of any Dell-branded product for consumers around the world as part of its new global recycling policy.

  http://www.dell.com/content/topics/global.aspx/corp/pressoffice/en/2006/2006_06_28_rr_001?c=us&cs=19&l=en&s=dhs

  www.dell.com/recycling

- Research grant opportunities to fund e-waste collection events or assist small, local businesses in exploring the opportunities to start an electronics recycling operation within the County.
- Coordinate annual e-waste collection events with another county or counties. By combining quantities, the County should realize economies of scale and benefit from reduced transportation, disposal and recycling costs.
- Consider accepting residential e-waste year-round at a County facility and eventually expanding the program to include accepting e-waste from small businesses and institutions for a fee.
- Advocate for state and federal legislation to fund not only e-waste collection and processing programs, but also electronics repair and reuse businesses.

## 6.6 Resources

The following websites provide additional resources for the County regarding the management of HHW and electronic waste. R. W. Beck does not endorse any particular company or organization.

### 6.6.1 Universal Waste

- U.S. Environmental Protection Agency

  http://www.epa.gov/epaoswer/hazwaste/recycle/electron/mce-fs.htm

  http://www.epa.gov/epaoswer/hazwaste/recycle/electron/crt.htm

### 6.6.2 CESGQ Collection Programs

- Hennepin County, Minnesota
  http://www.co.hennepin.mn.us/vgn/portal/internet/hcchannelmaster/0,2324,1273_83259,00.html
- City of Fargo, North Dakota
  http://www.ci.fargo.nd.us/solidwaste/hhwbusinesses.htm
- Sonoma County, California
  http://www.recyclenow.org/b_hazardous.html
- City of Glendale, California
  http://fire.ci.glendale.ca.us/emc/househazard.html
- Sarasota County, Florida
  http://www.co.sarasota.fl.us/Services/Service.aspx?C6B9C692B2=AC979D&D4C7CF=C6B9C691ADA2ACA799957F98A5A3A29597789F94A4A39D9879A3A5AB93A4B4

### 6.6.3 E-Waste Recycling

- "Computers: Exporting a Problem", Susan Bush. Recycling Today, February 18, 2002.
  http://www.mindfully.org/Plastic/Computers-Exporting-Problem18feb02.htm
- Electronic Industries Alliance
  http://www.eia.org/new_policy/environment.phtml
- TechSoup.org
  http://www.techsoup.org/learningcenter/hardware/page2261.cfm?CFID=18971171&CFTOKEN=89827504#q3
- National Safety Council
  http://www.nsc.org/ehc/epr2/recycler.HTM

### 6.6.4 Cell Phone Recycling

- City and County of Honolulu
  http://www.opala.org/recycling_at_home/cell_phone_recycling.html

### 6.6.5 Hazardous Materials Storage Units

- Safe Buildings Corporation
  http://www.safebuildingscorp.com/
- Interstate Products Inc.
  http://www.interstateproducts.com/securall/storage_buildings.htm?gclid=CIjijIDznoYCFUWDCwod9iaOtg

- Safety Storage
  http://www.safetystorage.com/products.asp
- U.S. Chemical Storage
  http://www.uschemicalstorage.com/hazmat-storage.htm
- Dawg, Inc.
  http://www.dawginc.com/secondary-spill-containment/chemical-storage-building.php